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ABSTRACT

In spring 1991, the Center for the Study of Community Colleges (CSCC) in Los Angeles, California, conducted the seventh in a series of studies of trends in liberal arts course offerings in community colleges nationwide. During spring 1992, CSCC developed a taxonomy for non-liberal arts courses, and completed a course section tally using the same 164 community colleges participating in the 1991 study. Study findings were combined with results from CSCC's ongoing Transfer Assembly Project to examine a number of research questions including: areas of change in the community college curriculum; the relationship between curricular emphases and transfer rate; the percentage of non-liberal arts courses which are transferable to four-year institutions; and the relationship between institutional characteristics (e.g., size and location) and curricular offerings. Major findings of the study included the following: (1) a total of 104,565 course sections were tallied, of which 45,360 (43.4%) were non-liberal arts courses; (2) while course offerings in agriculture and engineering have shown considerable decreases between 1978 and 1991, English-as-a-Second-Language course sections have increased dramatically during this same period, comprising over half of all foreign language enrollments in 1991; and (3) in California, close to two-thirds of non-liberal arts courses are transferable to comprehensive state universities. A detailed breakdown of course offerings by discipline area, a description of the taxonomy used for the 6 liberal arts discipline areas and the 10 non-liberal arts discipline areas, data tables, and references are included. (PAA)

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Curricular Trends in Community Colleges: Implications for Transfer

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CURRICULAR TRENDS IN COMMUNITY COLLEGES: IMPLICATIONS FOR TRANSFER

Introduction

Trends in the community college liberal arts curriculum have been charted for close to two decades. Courses in humanities, English, fine and performing arts, social sciences, the hard sciences, and mathematics and computer sciences form the core of the liberal arts curriculum and, except for developmental or remedial courses in these areas, most transfer to four-year institutions. Areas of increase or decrease in the liberal arts curriculum have been consistently tracked through two national databases (see Cohen and Brawer, (1987) and Cohen and Ignash, (1992) for a description of the community college liberal arts curriculum; see Lewis and Farris, (1990) for the undergraduate liberal arts curriculum). The most recent study conducted by the Center for the Study of Community Colleges (CSCC) in spring 1991 was the seventh in a series of studies tracking community college liberal arts course offerings since 1975.

Until recently, however, a complete description of the community college curriculum has never been attempted, since a concomitant description of the *non*-liberal arts curriculum was not provided along with that of the liberal arts. During spring 1992, the CSCC developed a taxonomy for the non-liberal arts and tallied course sections of this segment of the curriculum using the same 164 community colleges which participated in the 1991 National Liberal Arts Study. This paper provides the results of these two studies. Implications for transfer, with special reference to the state of California, are also given.

Research Questions

Specific research questions addressed by the 1991 National Liberal Arts Curriculum Study and the 1992 Non-Liberal Arts Curriculum Study provide a description of the total community college credit curriculum. In addition, by linking the results of the Transfer Assembly Project, also conducted by the CSCC, to the results of the two curriculum projects, research questions which go beyond description can be addressed. The following research questions were foci of the studies:

- In what areas has the community college liberal arts curriculum changed? Which areas have remained stable?
- What percentage of courses in the liberal arts are remedial, standard or advanced?
- What are the relationships between a college's liberal arts curriculum and its transfer rate? For example, does a greater percentage of liberal arts indicate a higher transfer rate?
- How do remedial and advanced percentages of course offerings relate to a college's transfer rate? For example, does a greater percentage of advanced course offerings indicate a higher transfer rate?
- Do colleges with greater than 20% minority enrollment differ in their curricular patterns from colleges with less than 20% minority enrollment?
- What is the ratio of liberal arts to non-liberal arts in community colleges nationwide?
- What percentage of courses in the various non-liberal arts areas are transferable to four-year institutions? Does "non-liberal arts" mean "non-transfer?"
- How greatly does community college non-liberal arts course transferability[1] vary according to type of four-year institution?
- Does the size of the college affect the curriculum offered? Do rural, suburban, and urban schools vary in their curricula?

This paper will present the more descriptive results of the two national curriculum studies and comment on transferability of the non-liberal arts in California. Questions analyzing the relationship between curriculum and transfer will be addressed by other members of this panel.

Methodology

Tallying and Coding Course Offerings in the Liberal Arts and Non-Liberal Arts

One hundred and sixty-four community colleges nationwide participated in both the 1991 National Liberal Arts Curriculum Study and the 1992 Non-Liberal Arts Study. Letters of invitation were sent to the Presidents of a random sample of community colleges listed in the 1991 Directory of the American Association of Community and Junior Colleges and a 68% response rate was obtained. Fifty-one of the colleges were small (less than 1500 students), 56 were medium-sized (between 1500 and 6000 students) and 57 were large colleges (greater than 6000

[1]"Transferability" and "transferability rate" are used throughout this paper to refer to *courses* which transfer from two-year to four-year institutions. The terms "transfer" and "transfer rate" are used to refer to *students* who transfer.

students). Each participating college was requested to send a course catalog and course schedule for spring session 1991.

With only minor changes, the liberal arts courses in the schedules were tallied and coded according to a taxonomy used by the CSCC since 1975.[2] The consistency in the taxonomy used was critical in making comparisons across studies. The taxonomy divided the liberal arts curriculum into six major disciplines: humanities, English, fine and performing arts, social sciences, the hard sciences, and mathematics and computer sciences. The six disciplines were divided into fifty-five broad subject areas, with these being further divided into two hundred and forty-five sub-subject areas. For example, a class entitled, "California History: 1865 to the Present," would have been coded under the sub-subject area "State and Local" under the broad subject area "History" in the discipline of "Humanities." Each of the courses were also coded for their level; "remedial" courses were those which were compensatory or developmental and considered below college-level proficiency, "standard" courses were any introductory or regular college courses which did not carry a prerequisite, and "advanced" courses were any which required a prerequisite in the same or a related field in order to enroll in the course. Foreign languages were a special case, however, in that only third and fourth years of study were considered advanced.

For the non-liberal arts study, however, a taxonomy had to be developed, since none existed for this segment of the community college curriculum. Based largely on a taxonomy developed by the National Center for Research in Vocational Education (NCRVE), a CSCC taxonomy was developed which coded non-liberal arts courses according to ten major discipline areas: Non-liberal Arts Agriculture, Business and Office, Marketing, Health, Home Economics, Technical Education, Engineering Technology, Trade and Industry, Education, and Other (see Appendix for Non-Liberal Arts Taxonomy).

In both studies, certain classes were not tallied. In order for a class to be coded, it had to list a definite time and meeting place. As a result, laboratory, independent study, field study, cooperative education, and apprenticeship classes were not coded.

Enrollment Figures for the Liberal Arts

In the liberal arts study only, second-census or end-of-the term student enrollment data were collected to provide average class size and total enrollment figures. These figures were provided through designated contact persons at each

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[2]An example of a minor change to the 1991 study include the creation of a new sub-subject category for "Asian Languages" under "Foreign Languages." Asian Languages had formerly been included under "Other Foreign Languages" in the taxonomy.

of the 164 community colleges. Student enrollment figures were requested for a "rolling random sample" of every tenth course offering under each of the 55 broad subject areas, after an initial random start. The number of cancelled class sections was also recorded. Average class size and enrollment figures were then calculated for the sample of 164 colleges and extrapolated to the universe of 1,250 U.S. community colleges.

Transferability Rates for the Non-Liberal Arts

For the non-liberal arts study only, course transferability rates were calculated for the states of California, Illinois, Florida, Texas, and North Carolina. Any course at a community college is likely to be accepted by some four-year institution somewhere within the state for credit. In order to avoid accumulating useless data showing that all community college courses are transferrable somewhere, the decision was made to calculate transferability rates to two specific types of four-year institutions--a "flagship" research university and a comprehensive college or university.[3] Reliable data were obtained from California, Illinois and Texas; data from colleges in Florida and North Carolina were too sparse to provide valid calculations.

In order to create a uniform basis of comparison between states, "transfer" was defined in this study as course-to-course transfer equivalencies, rather than "program" or "block" transfer of courses between institutions. If a course was listed as acceptable for transfer as general education credit, general elective credit, specific course credit in a major field, or a major field elective credit, from a community college to either a specified research university or comprehensive university, then the course was counted as a "transfer" course. We were concerned with discovering which courses a student could count on transferring to four-year institutions--even if that student had only taken a few community college courses.

Not all officials in the different states think of transfer in terms of specific "course" transfer, that is, the transfer of a specific community college course for either general or elective credit at a particular four-year college. Officials in states such as Florida, for example, prefer to consider transfer in terms of "degree completer" patterns. Community college students in Florida are strongly encouraged to complete the associate's degree or 60 credits in a specified program before transferring to a four-year institution with junior-level standing.

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[3]Research Universities I and Comprehensive Universities and Colleges I were defined in this study using the definitions in the 1987 edition of the Carnegie Foundation's A Classification of Institutions of Higher Education, p. 7.

Since the method of determining transferability of courses differs between states, a "generic" methodology for collecting this data was not possible. In some states we contacted the community college heads of counseling; in others we contacted articulation officers at the four-year institutions, and in one case we had to obtain Transfer Guides from postsecondary agency officials. In all five states we ended by contacting at least several offices to obtain necessary information.

Results

Ratio of Liberal Arts to Non-Liberal Arts

For the Spring 1991 National Liberal Arts Curriculum Study, 59,205 liberal arts course sections were tallied by staff at the CSCC. In the 1992 study of the non-liberal arts, 45,360 sections were tallied. The total number of course sections coded in the two studies is 104,565. The ratio of non-liberal arts to liberal arts is 43.4% or, stated conversely, the ratio of liberal arts to non-liberal arts is 56.6% of the total community college curriculum.

A possible explanation for the lower percentage occupied by the non-liberal arts stems from the way in which courses were coded. As noted in the Methodology section of this paper, a course had to list a definite time and meeting place in order to be coded. Therefore, laboratory courses, clinicals, practicums, field experience, independent study, and self-paced or modular classes were not included in the tallies for either the liberal arts or the non-liberal arts. Since laboratory classes occur with greater frequency in many non-liberal arts subject areas, their omission may at least partially account for the lower percentage of non-liberal arts courses in relation to the liberal arts. Laboratory classes are especially popular in many nursing and allied health programs, in technical education program classes such as computer literacy and data processing, and in trade and industry subject areas such as auto mechanics and cosmetology. In the liberal arts, however, fewer laboratory classes are offered. The largest liberal arts subject area offering laboratory classes is most likely music, where "applied" music classes, (often private lessons), were coded in the study as laboratory classes. Some laboratory classes are also offered in the hard sciences and in foreign language classes, though separate language laboratory classes have declined in popularity and, overall, few sections are offered.

Percentage of the Total Curriculum by Major Discipline Areas

The tables below provide the percentage breakdown of the total curriculum by major subject area. Table 1 provides a description of the percentages occupied by all six liberal arts and ten non-liberal arts discipline areas.

Table 1: Percentage of Total Curriculum by Major Discipline Areas

Discipline	No. Sections	Percent of Total Curriculum
Humanities	14,034	13.42%
English	13,327	12.75%
Math and Computer Sciences	11,176	10.67%
Business and Office	11,156	10.67%
Personal Skills & Avocational	8,643	8.27%
Trade & Industry	8,420	8.05%
Technical Education	8,229	7.87%
Sciences	8,031	7.68%
Social Sciences	6,966	6.66%
Fine and Performing Arts	5,671	5.42%
Health	4,641	4.44%
Marketing	1,523	1.46%
Education	1,147	1.10%
Engineering Technologies	889	0.85%
Agriculture (Non-Liberal Arts)	529	0.51%
Home Economics	106	0.10%
Other	77	0.07%
Total	104,565	100.0%

Tables 2 and 3 below provide the percentages occupied by each discipline area within the liberal arts and the non-liberal arts, respectively.

Table 2: Percentage of Liberal Arts Curriculum by Discipline Area, 1991 (N = 164)

Discipline Area	Percent of Liberal Arts
Humanities	23.7%
English	22.5%
Fine and Performing Arts	9.6%
Social Science	11.8%
Science	13.6%
Mathematics and Computer Science	18.9%

Table 3: Number of Sections Offered and Percent of Non-Liberal Arts Curriculum, 1992, (N=164)

Discipline Area	No. Course Sections	% of Non-Liberal Arts
Agriculture (Technology)	529	1.2%
Business & Office	11,156	24.6%
Marketing & Distribution	1,524	3.4%
Health	4,629	10.2%
Home Economics	106	.2%
Technical Education	8,233	18.2%
Engineering Technology	889	2.0%
Trade & Industry	8,427	18.6%
Personal Skills	8,643	19.1%
Education	1,147	2.5%
Other	77	.2%

The Remarkable Stability of the Liberal Arts--with a Few Exceptions

Trends in the liberal arts have been reported for the humanities, English, fine and performing arts, social sciences, and mathematics and computer sciences by comparing the results of the 1991 liberal arts study to previous studies conducted by the CSCC.[4] Overall, the liberal arts have remained remarkably stable over sixteen years. In only a few categories do noticeable increases or decreases occur--in the areas of agriculture, engineering and ESL.

Both agriculture and engineering[5] showed considerable decreases in course sections offered between 1978 and 1991. The reasons for these declines,

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[4]Since these trends are reported in the literature (see Cohen and Ignash, 1992; Ignash, 1992), they are not repeated here.

[5]Liberal arts agriculture courses (animal science, plant science, soil science, forestry) are distinct from the non-liberal arts agriculture courses (floriculture, farm management, flower shop management), just as engineering sciences (mechanical engineering, civil engineering, aeronautical engineering) are distinct from engineering technology courses (industrial electricity, avionics and practical aspects of piloting a plane, etc.)

however, may have more to do with sampling error than with actual numbers. Agriculture dropped from 6% of all science courses in 1978 to .3% of all such courses in 1991. Few agriculture courses were coded, however; out of 59,205 total liberal arts courses tallied, only 77 were agriculture courses. Apparently, few community colleges across the nation teach agriculture and, therefore, in national samples of 10 to 15% of the total population of community colleges, sampling error has an exaggerated effect. Figures were too small to be reliable.

The decline in liberal arts engineering courses was also due, in part, to the small number of such courses offered as well as to a second factor--an increase in computer-assisted drafting and engineering courses which were often coded under "Computer Science" or under the non-liberal arts "Technical Engineering" category. It is possible that a "category shift" occurred in the way these courses were coded by CSCC staff between the 1978 study and the 1986 and 1991 studies.

While the changes in liberal arts agriculture and engineering courses were, therefore, most likely due to data gathering and taxonomy issues, an area of real change did occur in the sub-subject area of ESL. A phenomenal rise in foreign language sections offered occurred between 1977 and 1991; this rise was due solely to an increase in ESL.

A Major Exception: English as a Second Language

A decision was made in the first CSCC study to place ESL under Foreign Languages in the coding taxonomy. Whether this placement is appropriate or not, the 1991 study adhered to this placement so that comparisons could be made across studies. This comparison reveals the following increase in foreign languages as part of the total humanities curriculum: 20.5% in 1977; 27.7% in 1983; 28.4% in 1986; and 35.8% in 1991. That foreign languages occupies more than a third of total humanities course offerings is due almost entirely to an increase in ESL. In 1983, ESL comprised only 30% of the total foreign language sections offered; by 1991 that percentage had increased to 51% (see Figure 1 below). Although ESL is largely an urban phenomenon, the number of community colleges across the country which offer any sections of ESL has risen from 26% in 1975 to 40% in 1991. Student enrollment figures reinforce this picture. In spring session 1991, enrollment in ESL was an estimated 236,000 out of a total foreign language enrollment of 460,000.[6] Thus, ESL accounted for over half of all foreign language enrollment.

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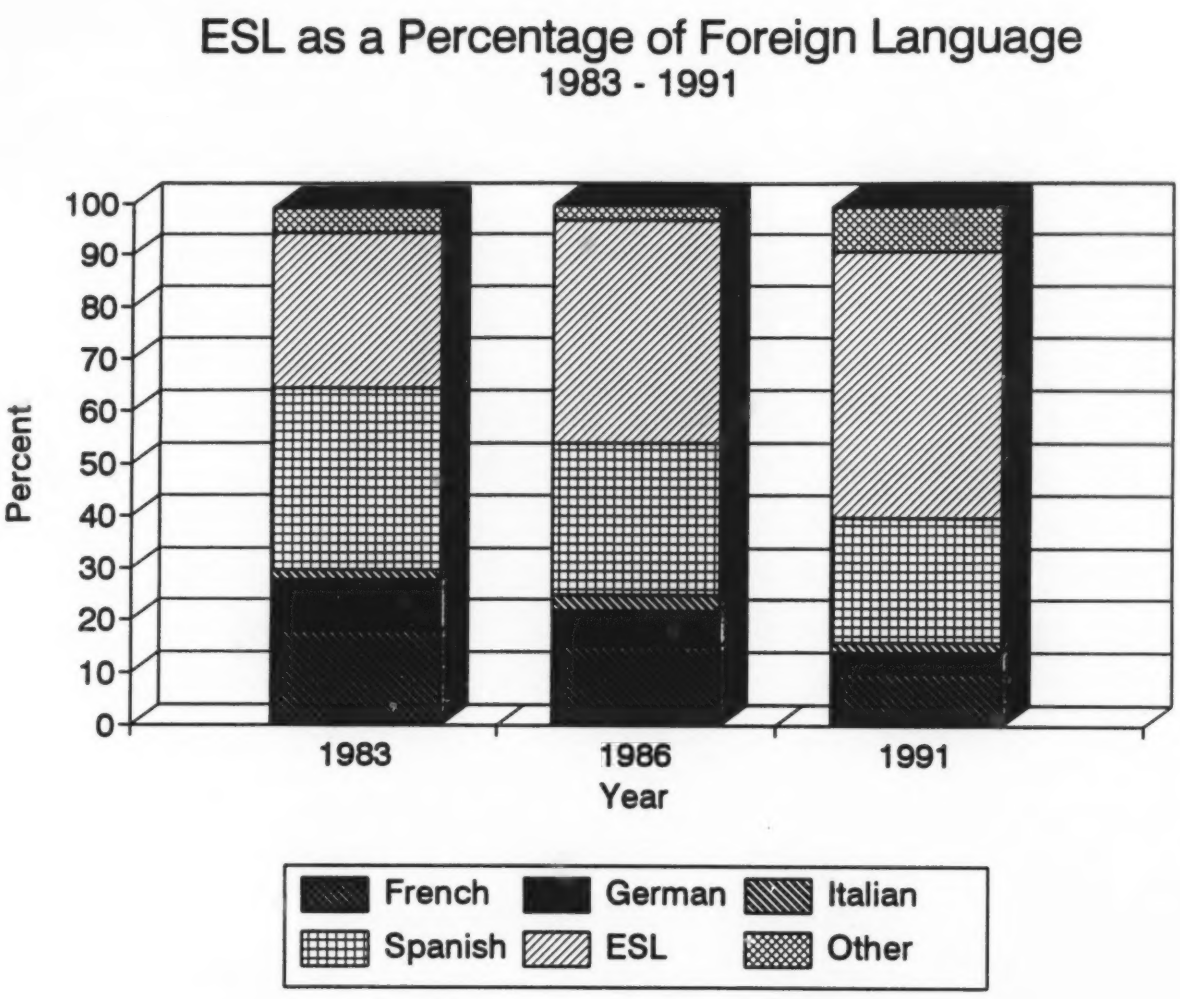
[6]For a description of the method used to derive national enrollment figures, see Cohen and Ignash (1992), p. 54.

Figure 1:



The effect of ESL on several colleges in the 1991 liberal arts study is shown in the table below. Table 4 shows the eight largest ESL for-credit programs of the 164 colleges in the study. The number of ESL course sections offered is provided, along with the percentage of the liberal arts curriculum occupied by ESL.

Table 4: Large ESL Programs

Community College	No. of ESL Sections	ESL as a Percent of Liberal Arts Curriculum
Yuba College (CA)	70	12.4%
Pasadena City College (CA)	71	5.7%
Comm. College of Philadelphia (PA)	83	6.4%
San Jose City College (CA)	89	16.6%
Miami-Dade (South Campus only) (FL)	152	9.7%
Passaic County Comm. College (NJ)	160	38.6%
Harry S. Truman College (IL)	243	42.2%
El Paso Community College (TX)	429	26.0%

When one considers that some community colleges offer sizeable non-credit ESL programs, the implications are enormous. The impact of ESL on community colleges will be discussed further in this paper in the Implications for Transfer section.

Transferability of the Non-Liberal Arts

A major goal of the non-liberal arts project was to determine the extent to which non-liberal arts courses are transferrable to four-year institutions. Because of the difference in transfer rates to type of four-year institution, the study calculated transfer rates to both flagship research universities and to comprehensive colleges and universities. Reliable data was gathered for the states of California, Texas and Illinois. Results for California are reported below.

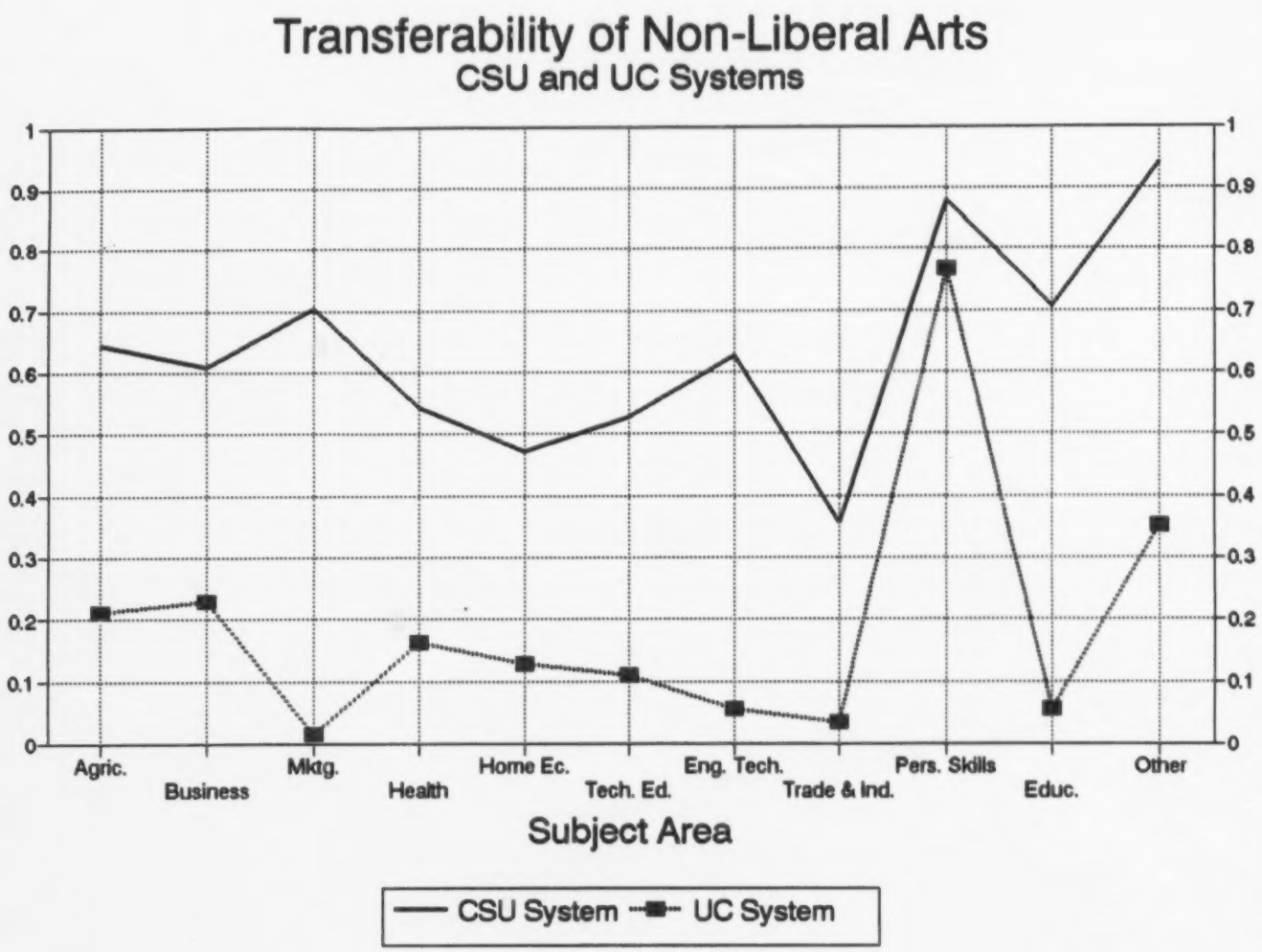
<u>California</u>

Table 5 and Figure 2 below reveal the transferability rates of non-liberal arts courses in 30 California community colleges to both the UC and the CSU systems.

Table 5: Percentage of Non-Liberal Arts Courses which Transfer to the UC and CSU Systems, California Colleges (N = 30)

Transfer Discipline Area	CSU System	UC System
Agriculture (non-liberal arts)	64.5%	21.0%
Business & Office	61.0	23.0
Marketing & Distribution	70.3	1.6
Health	54.3	16.3
Home Economics	47.1	12.9
Technical Education	52.8	11.0
Engineering Technology	62.6	5.7
Trade & Industry	35.7	3.7
Personal Skills	88.0	76.7
Education	70.6	5.6
Other	94.1	35.3
Overall Transferability	**61.7%**	**28.9%**

Figure 2: Transferability Percentages to CSU and UC Systems, California Community Colleges (N = 30)



Except in the area of Personal Skills and Avocational courses, transfer rates in the non-liberal arts from California community colleges are considerably lower to the UC system than to the CSU system. Because the UC system accepts almost all physical education courses at community colleges, only 11.3 percentage points separate UC acceptance of transfer credit of Personal Skills courses (76.7%) from CSU acceptance rates (88%). In the other nine non-liberal arts subject categories, the differences in rates of acceptance for transfer credit between the two systems range from 32% to 68.7%. The UC system is clearly more selective in allowing transfer credit for non-liberal arts courses than the CSU system.

Several areas bear specific mention. In the CSU system, at least half of all non-liberal arts courses in the ten different areas do transfer, with the noticeable exception of Trade and Industry (35.7%). The other area of relatively low transfer to the CSU system is Home Economics (47.1%). This course transfer percentage may not be very reliable, however, since so few courses are coded under this category (70 sections in Home Economics out of a total 12,632 total non-liberal arts sections for California).

Implications for Transfer

Few surprises were contained in the 1991 National Liberal Arts Study. As stated earlier, the liberal arts have remained remarkably stable. The lone exception to this stability was the tremendous increase in ESL classes. With 1990 Census data indicating huge percentage increases of limited English proficient speakers in certain urban areas of the country, the ESL phenomenon is unlikely to subside. Census data for the decade between 1980 and 1990 for California show an 89.8% increase in the number of Spanish-speaking persons who report that they speak English "not well" or "not at all" and a 100.8% increase in the number of Asian, Pacific Island, or Other Language speakers who fall into this category (U.S. Department of Commerce, Bureau of the Census, 1980 and 1990). For many urban areas, ESL will remain an area of growth. How much support should be provided to ESL students who want to complete the transfer curriculum are questions of policy and planning which some community colleges will have to address.

In contrast to the liberal art study, the 1992 Non-Liberal Arts Curriculum Study was unable to draw comparisons to earlier studies. But the current study's findings do reveal that a considerable percentage of the non-liberal arts are transferable. In California, close to two-thirds of the non-liberal arts are transferable to comprehensive state universities, while in Texas 40% are transferable. Clearly, non-liberal arts does not necessarily mean non-transfer.

A closer look at the data, however, would indicate that not all non-liberal arts areas are equal in terms of transferability. In California, only Personal Skills courses (largely Physical Education) are transferable in high percentages to the major research university system (77%). The next closest area is Business and Office with 23%. Transferability to the state comprehensive university system, however, is much less selective, with nine out of eleven discipline areas carrying transfer credit for more than 50% of their non-liberal arts credit courses. As far as the CSU system is concerned, non-liberal arts is not to be equated with non-transfer.

One qualification, however, should be added to the above statement: Trade and Industry courses are substantially lower in transferability rates than other non-liberal arts courses. Trade and Industry includes courses in such subject areas as

the construction trades, CAD/CAM, mechanics and repairers, welding, cosmetology, hospitality industry, and some fashion industry. Apparently, four-year degree programs in these areas are either non-existent or exclusionary as regards transferability from community colleges.

Implications for Future Research

While further studies of the non-liberal arts portion of the curriculum need to be conducted in order to draw comparisons, the following questions regarding the non-liberal arts and transfer are being addressed in the 1992 study:

- How much of the non-liberal arts transfers? Are percentages relatively consistent across the country?
- Is transfer a function of a college's emphasis on the liberal arts--or do the non-liberal arts play an equally important role in the transfer function?
- Is there a relationship between the proportion of non-liberal arts courses which are transferrable from a community college and that college's student transfer rate?
- Is there a relationship between minority student enrollment and non-liberal arts transferability rates?

By linking the results of both CSCC curriculum studies with the Center's Transfer Assembly Project, issues can be addressed concerning the degree of educational and social opportunity afforded community college students throughout the total curriculum--liberal arts as well as non-liberal arts.

APPENDIX A

Center for the Study of Community Colleges
National Liberal Arts Curriculum Study

LIBERAL ARTS TAXONOMY

Humanities

Art history/appreciation, cultural anthropology, cultural geography, foreign languages, history, interdisciplinary humanities (combination of 2 or more humanities subject areas), literature, fine and performing arts history/appreciation, music history/appreciation, philosophy, political science, religious studies, and social and ethnic studies

English

English composition, reading, speech, and business communications

Fine and Performing Arts

Dance, music, theater, visual arts (includes graphics, painting/drawing, handicrafts, design)

Social Sciences

Anthropology, economics, geography (general, economics and political), interdisciplinary social studies (combining 2 or more areas of social sciences), psychology, sociology, and history/sociology/philosophy of science

Sciences

Agricultural sciences and natural resources, biological sciences (includes human biology), chemistry, earth and space sciences, engineering sciences, environmental science, geology, integrated sciences, physics

Mathematics and Computer Sciences

Introductory and intermediate mathematics, advanced mathematics (includes analytic geometry, calculus, linear algebra), applied mathematics (technology-related), computer sciences and programming, mathematics for other majors, statistics and probability

APPENDIX B

Center for the Study of Community Colleges
Non-Liberal Arts Curriculum Study

NON-LIBERAL ARTS TAXONOMY

The taxonomy used in this study to code courses in the non-liberal arts was based largely on the "Taxonomy of Academic and Vocational Courses for Less-than-4-Year Postsecondary Institutions" developed by the National Center for Research in Vocational Education (NCRVE) at Berkeley. Major categories were adopted from the NCRVE taxonomy and specific subject areas for inclusion into these categories were developed by staff at the Center for the Study of Community Colleges. The major categories and specific course areas are as follows:

Agriculture

Horticulture, agribusiness and crop production, forest products and other agriculture products, agricultural sciences, renewable natural resources, animal health technology, nursery operation

Business and Office

Accounting, taxes, business and management, secretarial and related (filing, typing, shorthand, 10-key calculations), labor law, will, trusts and estate planning, legal assistant, other business and office, air line ticketing and reservations

Marketing and Distribution

Real estate, fashion merchandising, salesmanship, auctioneering, advertising design layout, purchasing textiles

Health

Nursing, health sciences, allied health, CPR, emergency technician, nutrition, marriage and family counseling courses, drug counseling, working with juvenile delinquents, dental assisting, corrective and rehabilitative physical education or other physical therapy for the physically challenged

Home Economics

Home economics, sewing, cooking, preserving foods, home interior decorating, all home economics courses which are not focused on trade and industry and which are intended for one's personal use at home

Technical Education

Computer software applications (wordprocessing, spreadsheets, database programs, networking, desktop publishing--all *non-programming* computer

applications); protective services including fire, police and law enforcement, lifeguard, and military science courses; communication technologies including journalism, TV, newspaper reporting, radio announcing, photo journalism, and other mass media courses, graphics and offset printing; commercial photography

Engineering Technologies

Most of this category was coded under the Spring 1991 Liberal Arts Study. Engineering courses which were too occupationally-oriented to be coded in the liberal arts, however, were coded under non-liberal arts. These non-liberal arts engineering courses focus on engineering principles such as "Analog or Digital Fundamentals" or "AC/DC Current" or "Ohm's Law" as well as more practical subject matter. Examples: "Avionics" (theory of flight and practical aspects of flying an airplane) or "Industrial Electricity."

Trade and Industry

Construction; automotive; aviation engineering (concerning the manufacture of airplanes); surveying; drafting including CAD/CAM; other mechanics and repairers; welding and precision metal; other precision production; transport and materials moving; consumer/personal/ miscellaneous services including cosmetology, upholstery; hospitality industry courses including culinary arts and wines; pattern design and many apparel construction courses; travel and tourist agent

Personal Skills and Avocational Courses

Physical Education, freshman orientation, introduction to the library, parenting, fashion color analysis, career and life planning, self-appraisal courses

Education

Early childhood education, physical education instructor courses, coaching, children's literature, nanny courses, math or music or art for teachers, courses for future instructors of the emotionally and mentally challenged

Other

Social Services program training courses, library cataloguing procedures

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